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(54) **MOBILE COMMUNICATION TERMINAL
AND METHOD**

(56) **References Cited**

U.S. PATENT DOCUMENTS

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6,981,021 B2 12/2005 Takakura et al.
7,411,939 B1 8/2008 Lamb et al.
2003/0140145 A1 7/2003 Lindberg et al.

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(Continued)

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FOREIGN PATENT DOCUMENTS

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EP 0 981 252 A2 2/2000
EP 1 248 486 A2 10/2002

(Continued)

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OTHER PUBLICATIONS

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Nokia; "Bedienungshandbuch Nokia 6101"; [Online]; [Retrieved on
Nov. 7, 2006]; Retrieved from the Internet: URL: http://ndsl.nokia.com/phones/files/guides/Nokia_6101_UG_de.pdf;
XP007900821; 153 pages.

"Push to Talk Over Cellular, Increasing mobile penetration in low
income segments", Nokia, pp. 1-2.

"Short Audio Messaging, New low cost voice communication ser-
vice", Nokia, pp. 1-2.

(Continued)

Related U.S. Application Data

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H04L 12/18 (2006.01)
H04L 12/58 (2006.01)
H04M 1/725 (2006.01)

(52) **U.S. Cl.**

CPC **H04W 4/12** (2013.01); **H04L 12/1818**
(2013.01); **H04L 12/581** (2013.01); **H04L**
51/04 (2013.01); **H04M 1/7255** (2013.01)

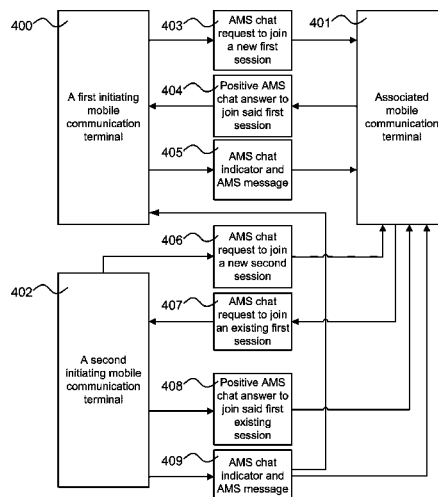
(58) **Field of Classification Search**

CPC H04W 4/12
USPC 709/204, 205, 206; 715/758
See application file for complete search history.

(57) **ABSTRACT**

The present invention relates to methods, apparatuses, com-
puter program products, and systems for handling an audio
messaging service (AMS) chat session. A method according
to an example embodiment includes receiving a first AMS
chat request, causing a second AMS chat request that is asso-
ciated with an existing AMS chat session to be transmitted,
and receiving an AMS chat answer in response to the second
AMS chat request, the AMS chat request being configured to
allow a mobile communication terminal to enter the existing
AMS chat session.

15 Claims, 10 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

2003/0147512	A1	8/2003	Abhuri
2003/0210265	A1	11/2003	Haimberg
2004/0015547	A1	1/2004	Griffin et al.
2004/0141508	A1	7/2004	Schoeneberger et al.
2005/0071767	A1	3/2005	Kirkland
2005/0102358	A1	5/2005	Gold et al.
2005/0262542	A1	11/2005	DeWeese et al.
2006/0242232	A1	10/2006	Murillo et al.

FOREIGN PATENT DOCUMENTS

EP	1 331 786	A1	7/2003
WO	WO 01/93047	A1	12/2001
WO	WO 03/096556	A2	11/2003
WO	WO 2004/008335	A1	1/2004
WO	WO 2004/049681	A1	6/2004

OTHER PUBLICATIONS

International Search Report and Written Opinion for International Application No. PCT/IB2006/000938, mailed Aug. 14, 2006.

Nokia Xpress Audio Messaging; "Creating new revenue from existing MMS assets"; [Online]; [Retrieved on Oct. 7, 2006]; Retrieved from the Internet: URL:http://www.nokia.com/NOKIA_COM_1/About_Nokia/Press/Press_Events/zz_Nokia_Press_Conference_in_Cannes_page_69809/audiomessagingdatasheet2.pdf>; 5 pages.

Nokia; "Bedienungshandbuch Nokia 6101"; [Online]; [Retrieved on Nov. 7, 2006]; Retrieved from the Internet: URL:http://ndsl.nokia.com/phones/files/guides/Nokia_6101_UG_de.pdf>; XP007900821; 153 pages.

Canadian Office Action dated Oct. 26, 2009.

"Nokia 3310 Phone Features", <http://www.nokia.com/nokia/0,8764,2236,00.html>, Apr. 26, 2005, pp. 1-3.

Office Action for corresponding Indian Application No. 8194/DELNP/2007 dated May 26, 2015.

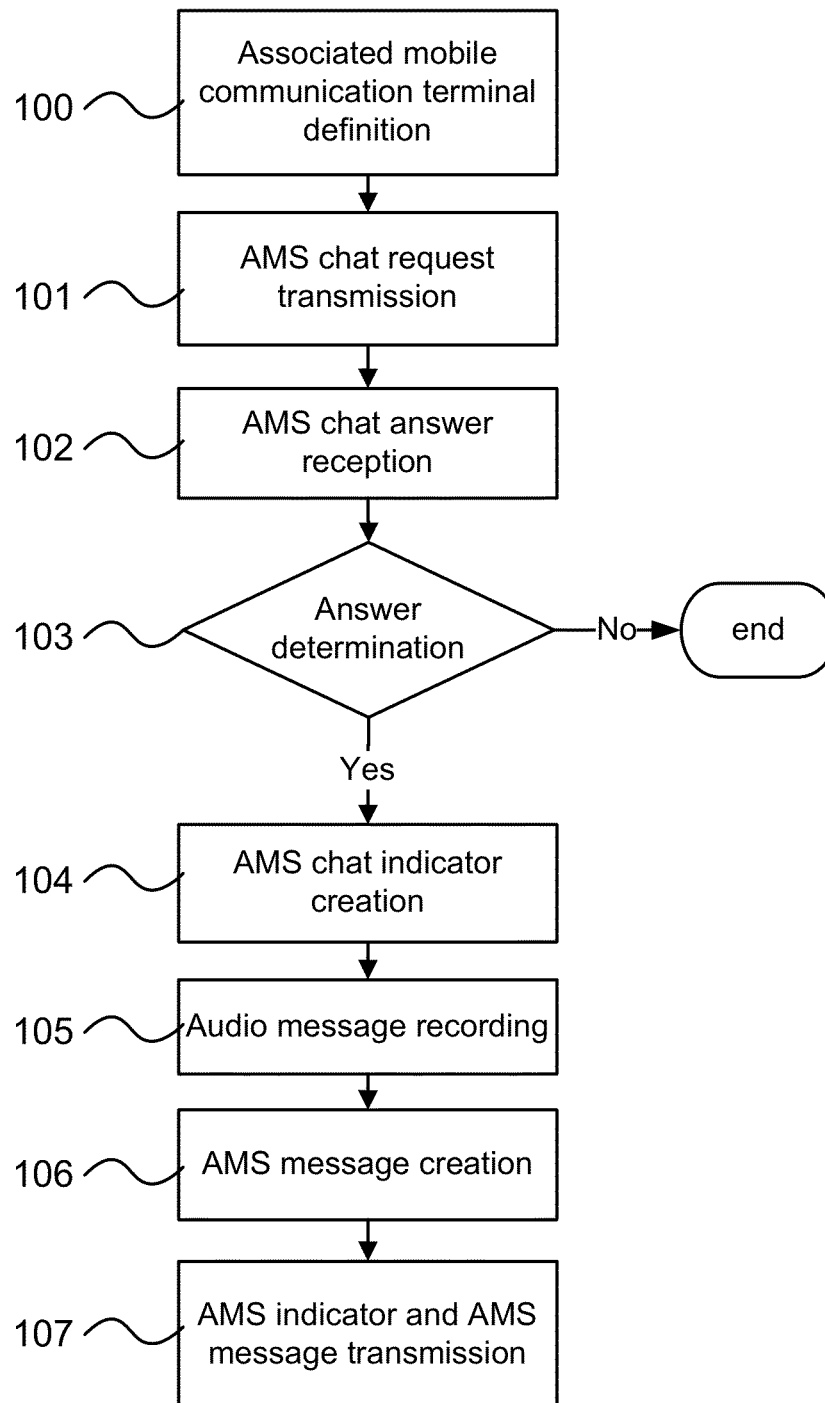


Fig. 1

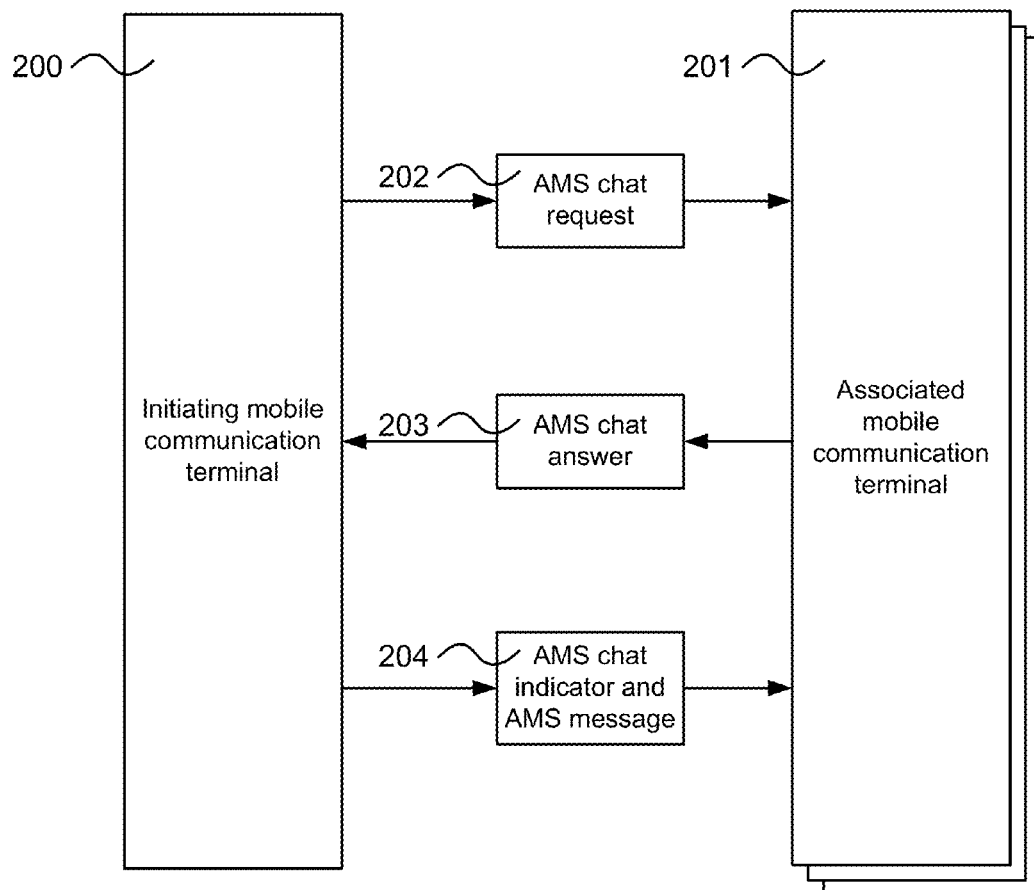


Fig. 2

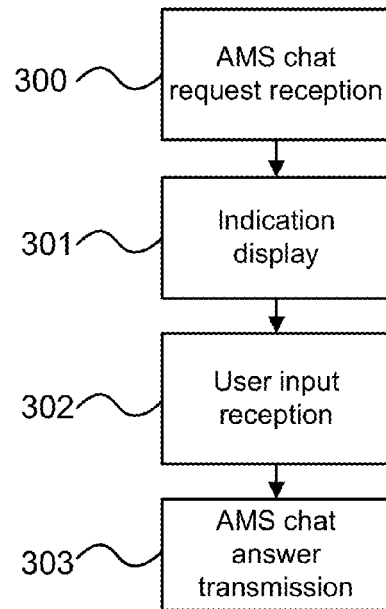


Fig. 3

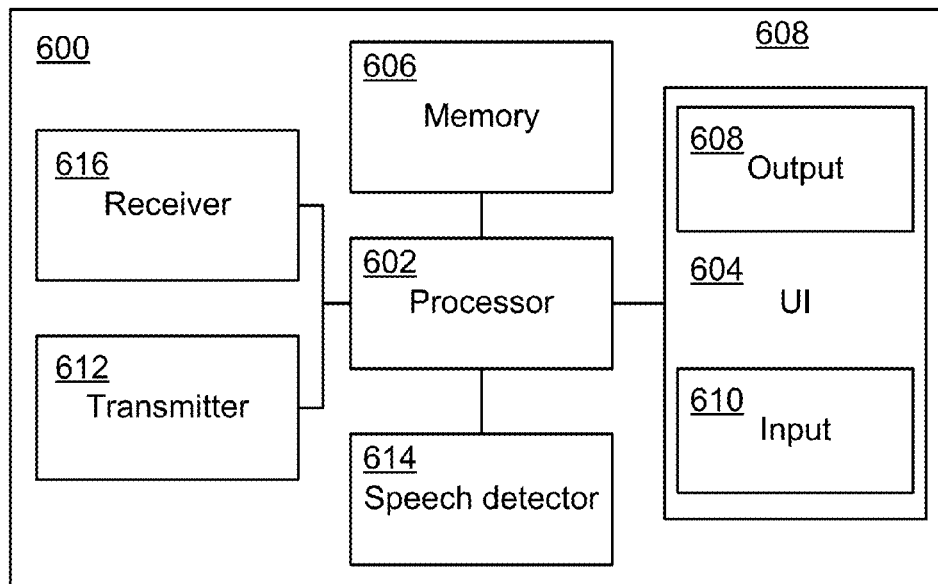


Fig. 6

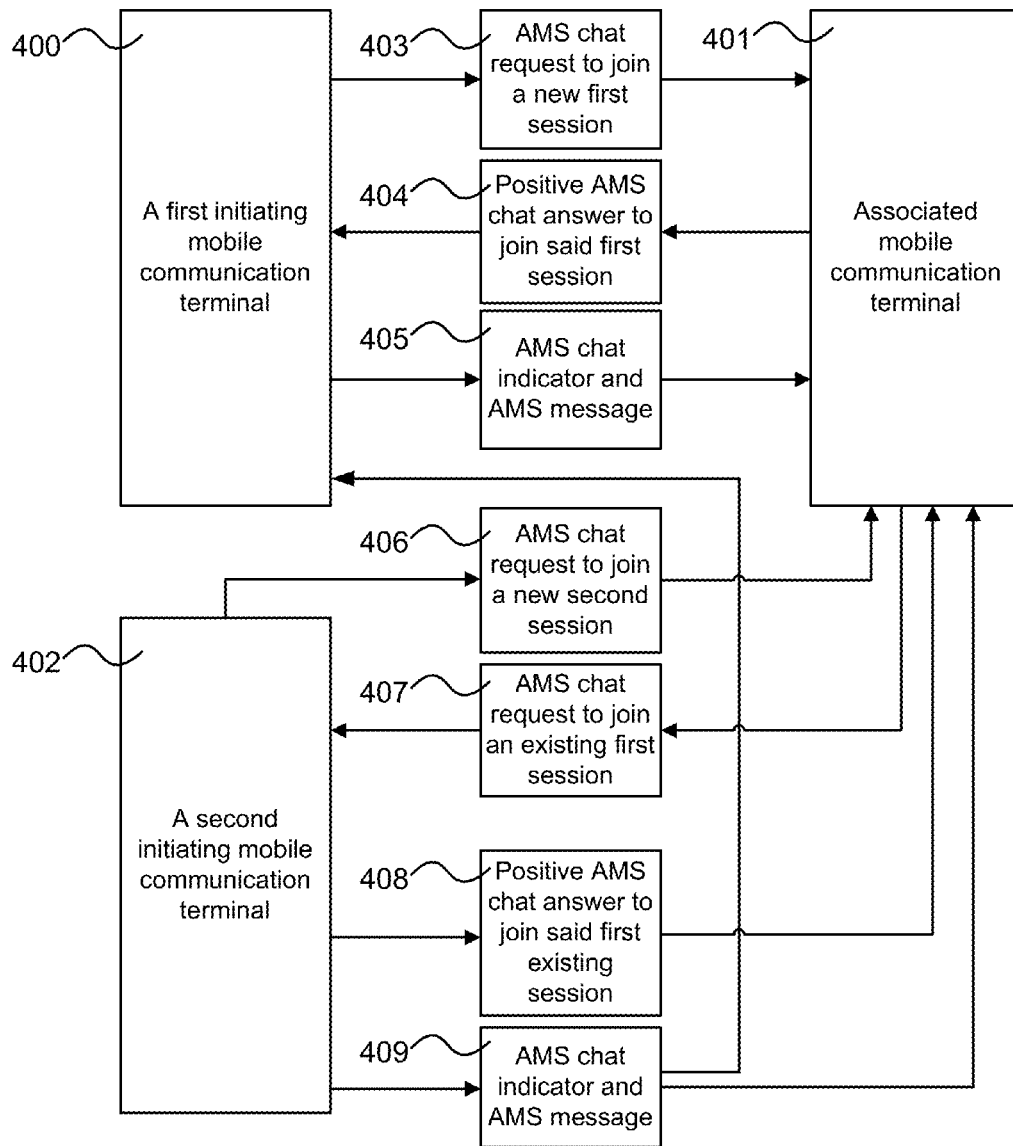


Fig. 4

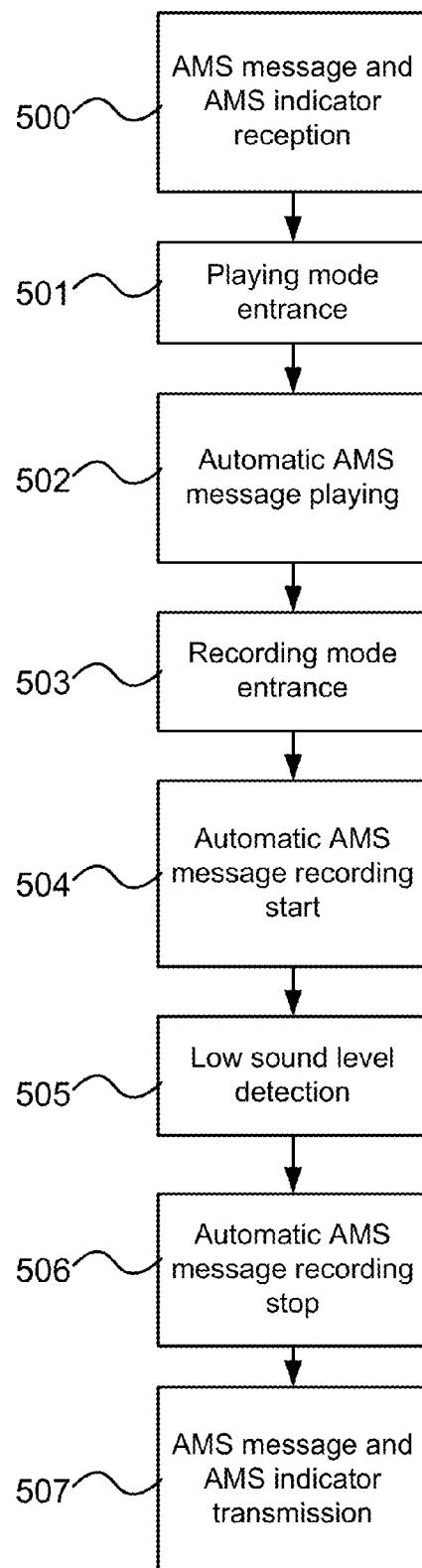


Fig. 5

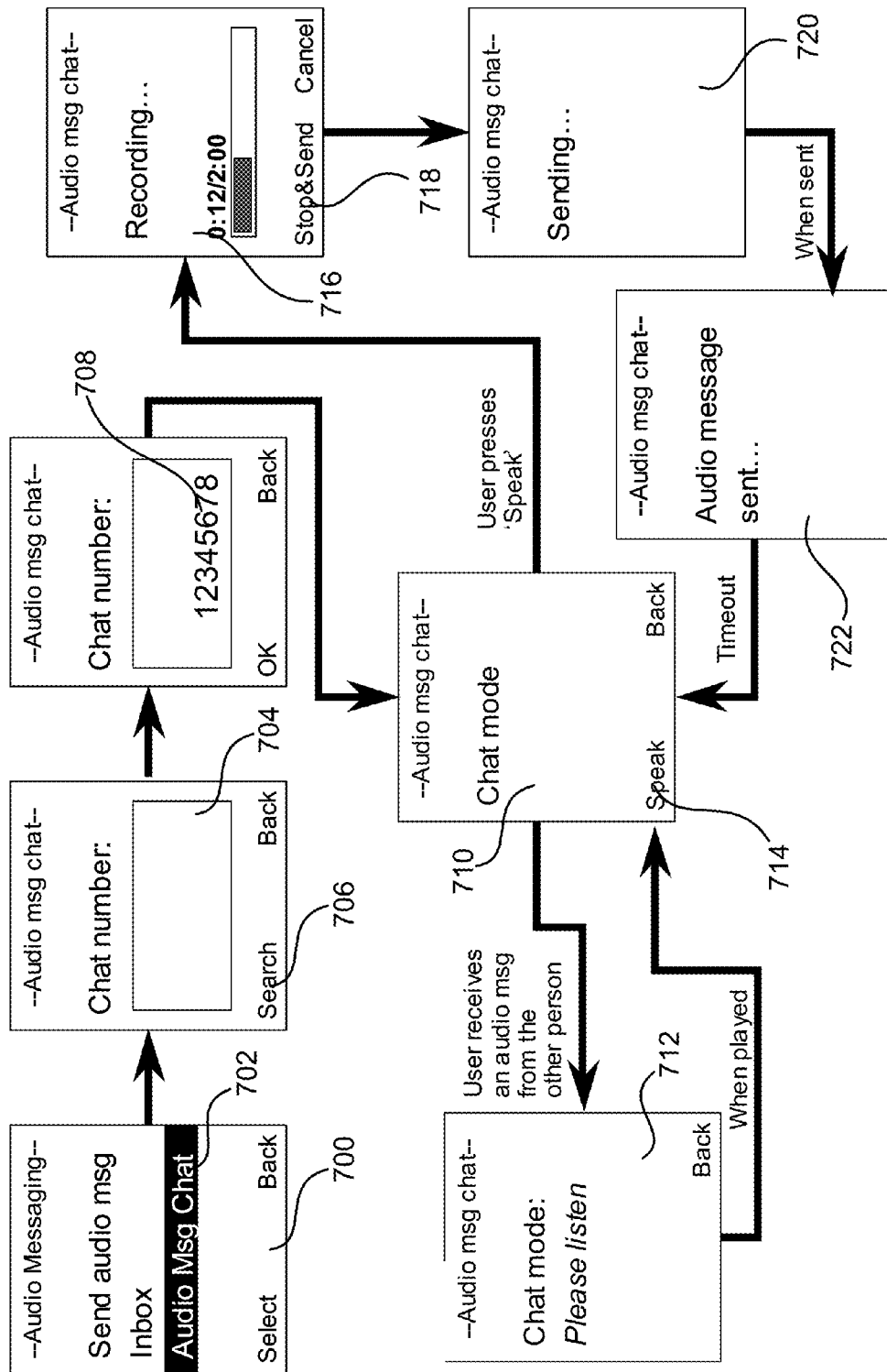


Fig. 7

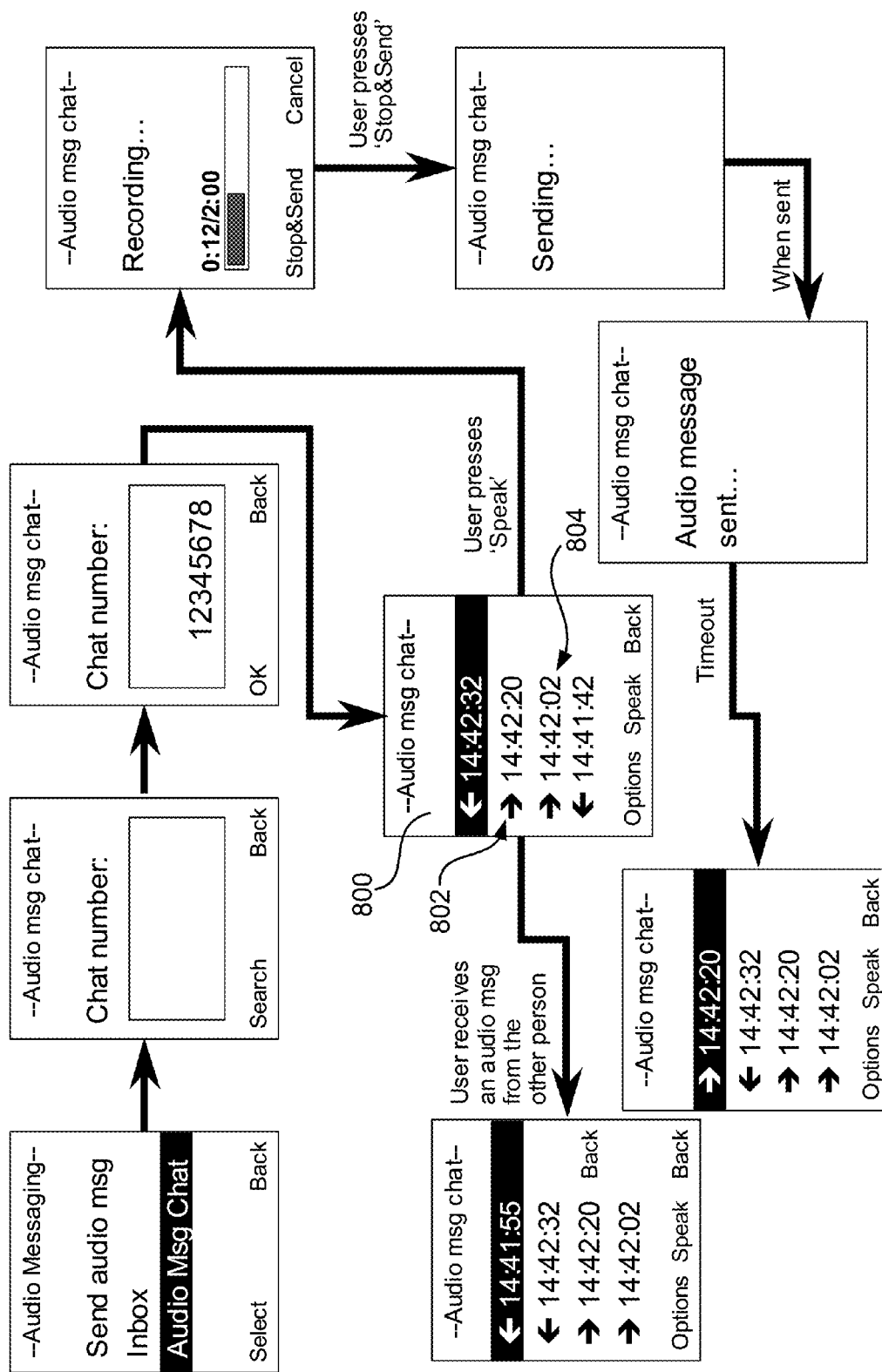


Fig. 8

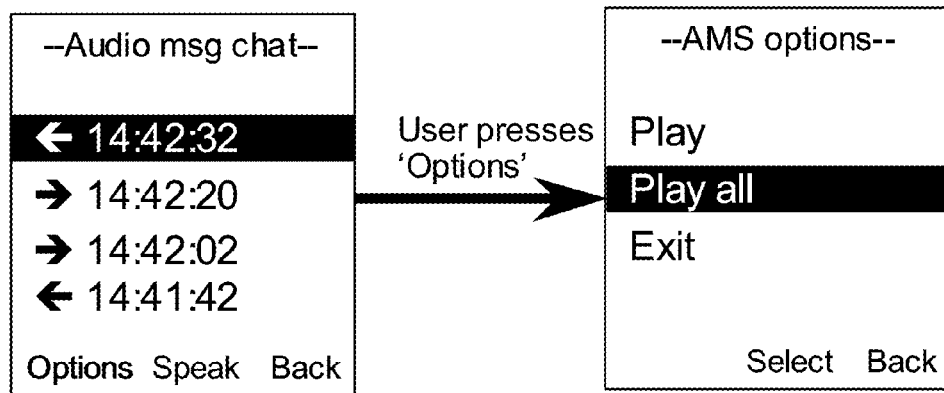


Fig. 9

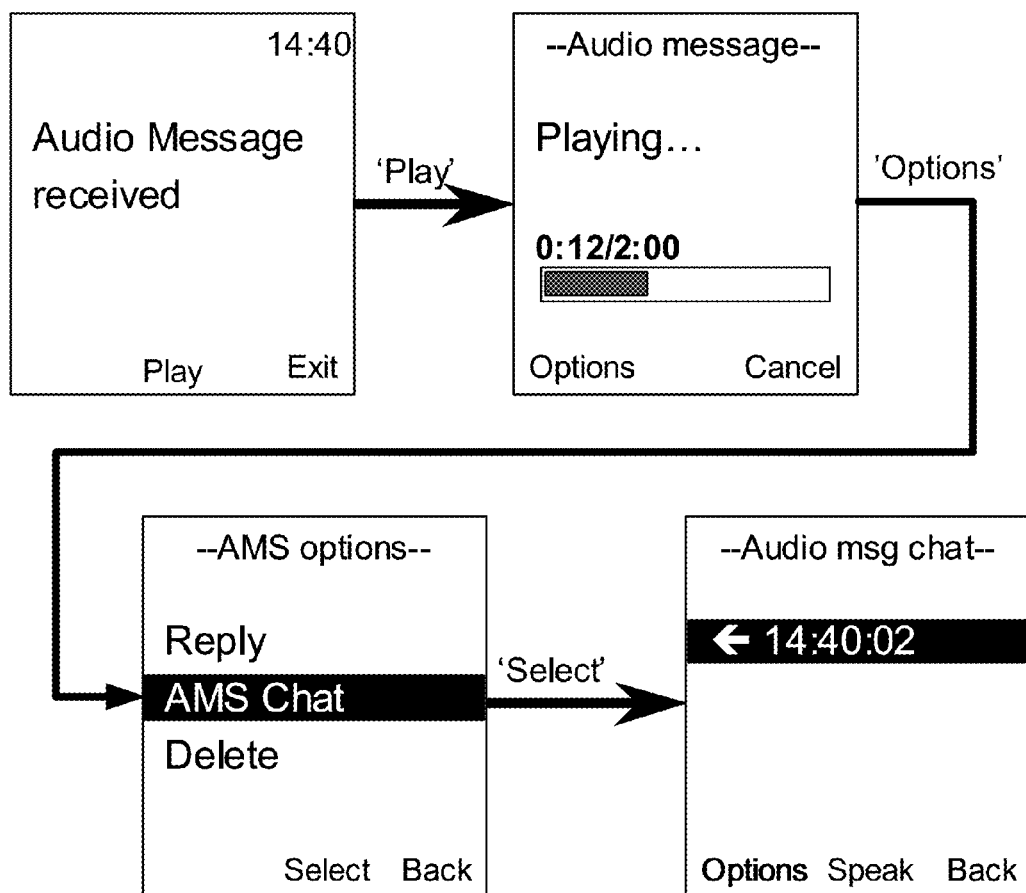


Fig. 10

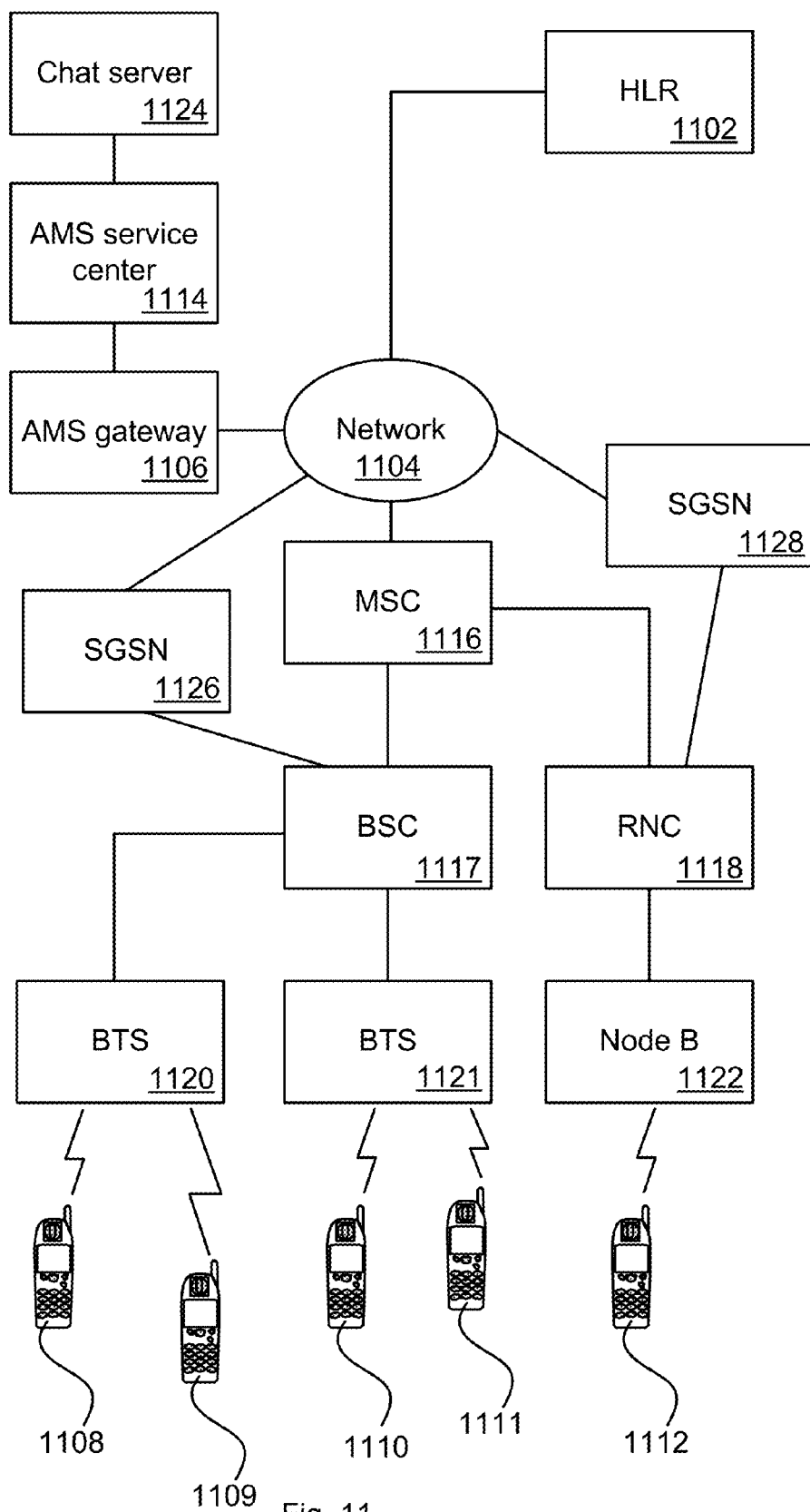


Fig. 11

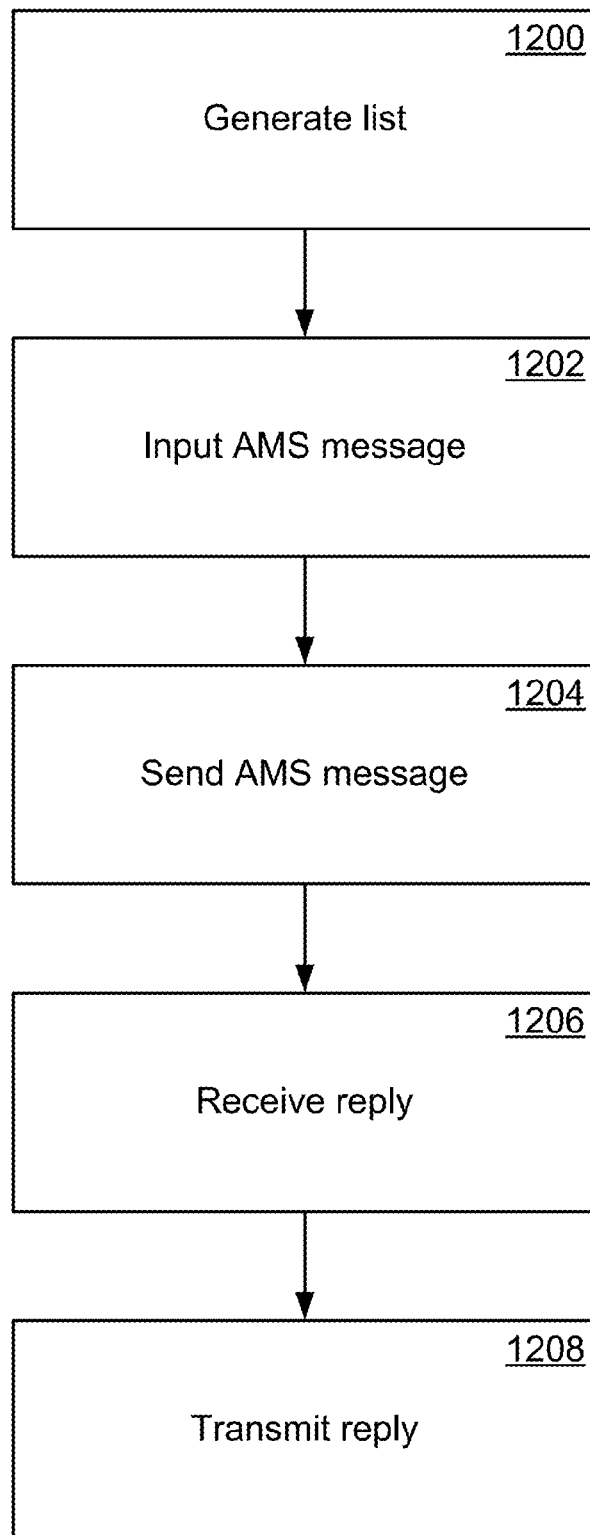


Fig. 12

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MOBILE COMMUNICATION TERMINAL AND METHOD

CROSS REFERENCE TO RELATED APPLICATIONS

This Application is a continuation of U.S. application Ser. No. 11/116,958, filed on Apr. 28, 2005.

TECHNICAL FIELD

The present invention relates to a method for sending and receiving sound based messages in an efficient way between one or several mobile communication terminals, a mobile communication terminal, a computer program, a system for handling an audio messaging service chat session between mobile communication apparatuses, and a method for handling an audio messaging service chat session between mobile communication apparatuses.

BACKGROUND ART

Sending short messages has because of its cheapness and efficiency become a popular way for mobile communication, and hence an important part of the mobile communication technology. Today, when the mobile communication technology has reached new parts of the world and new types of users, of which a not negligible part are illiterals, sound based messaging services has been developed. One of these is the so-called 'Short Audio Messaging', abbreviated SAM.

In the document 'Short Audio Messaging—New low cost voice communication service', published 2003 by Nokia Corporation and here incorporated by reference, a messaging service called Short Audio Messaging (SAM) is disclosed where audio clips are sent as messages.

This messaging service has nevertheless some drawbacks regarding the message handling, e.g. it is unhandy to communicate in groups and to handle longer conversations.

SUMMARY OF THE INVENTION

An object of the present invention is to provide an efficient sound based communication service for mobile communication terminals where a plurality of users can participate.

The above object is provided according to a first aspect of the present invention by a method for a audio messaging service (AMS) chat initiating mobile communication terminal comprising: defining at least one associated mobile communication terminal to participate in a AMS chat session; creating a AMS chat indicator; recording an audio message; creating a AMS message associated with said audio message; and transmitting said AMS chat indicator and said AMS message to said at least one associated mobile communication terminal.

An advantage of this is that the user of the initiating mobile communication terminal may send one AMS message to several mobile communication terminals simultaneously.

Another advantage of this is the AMS chat indicator, which may give the receiving mobile communication terminal an indication to enter a AMS chat mode.

The method of the above mentioned first aspect may further comprise: transmitting a AMS chat request to said at least one associated mobile communication terminal; receiving a AMS chat answer; and continuing said AMS chat session if said received AMS chat answer is positive.

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An advantage with this is that the receiving mobile communication terminal may choose whether to participate or not in said AMS chat session.

In this first aspect of the present invention said received AMS chat answer may be a second AMS chat request associated with an existing second AMS chat session, further comprising: transmitting a second AMS chat answer; and entering said existing second AMS chat session if said transmitted AMS chat answer is positive.

An advantage with this is that, if the mobile communication terminal, to which said AMS message and said AMS indicator is sent, already participates in an existing AMS chat session when said AMS chat request is received, a second AMS chat request to join said existing AMS chat session may be sent to said initiating mobile communication terminal instead of a AMS chat answer regarding a new AMS chat session. In this way a more flexible and efficient chat solution is achieved.

In this first aspect of the invention, the AMS chat indicator may comprise a AMS chat session ID, and the method may further comprise: creating a new AMS chat session for every new session ID.

An advantage of this is that several AMS chat sessions may be in progress at the same time. The method of the above mentioned first aspect may further comprise: selecting sent AMS messages, or received AMS messages or any combination of these, from one of said one or several associated mobile communication terminals, for said AMS chat session; and presenting selected one or several AMS messages.

An advantage of this is that a specific AMS message in said AMS chat session may be easier to find.

Another advantage of this is that the user may configure the AMS message presentation of said AMS chat according to his or her preferences.

The method of the above mentioned first aspect may further comprise: selecting one or several sent AMS messages, or received AMS messages or any combination of these, from one of said one or several associated mobile communication terminals, for said AMS chat session; and playing said selected one or several AMS messages in said AMS chat session consecutively.

An advantage of this is that several AMS chat messages in a AMS chat session may be played with less user interaction and with fewer interruptions.

The method of the above mentioned first aspect may further comprise: selecting one or several sent AMS messages, or received AMS messages or any combination of these, from one of said one or several associated mobile communication terminals, for said AMS chat session; and deleting selected AMS messages.

An advantage of this is that AMS messages in a AMS chat session may be deleted in an efficient way.

The method of the above mentioned first aspect may further comprise: entering an existing AMS chat session; transmitting a AMS chat request concerning said AMS chat session to a mobile communication terminal; receiving an answer from said mobile communication terminal; and adding said mobile communication terminal to said existing AMS chat session if said received answer is positive.

An advantage of this is that the initiating mobile communication terminal may invite a mobile communication terminal to join an existing AMS chat session.

The method of the above mentioned first aspect may further comprise: deleting an associated mobile communication terminal from said AMS chat session.

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An advantage of this is that the initiating mobile communication terminal may remove a misbehaving participant from a AMS chat session.

The method of the above mentioned first aspect may further comprise: leaving said AMS chat session; and deleting AMS messages associated with said AMS chat session.

An advantage of this is that the memory handling in the mobile communication terminal is more efficient, since no old data is saved. It is also an advantage that this is made automatically when leaving the AMS chat session, since this does not require any user interaction.

The method of the above mentioned first aspect may further comprise: leaving said AMS chat session; and storing said AMS chat session internally, or externally on a storing device, or a combination of these.

An advantage of this is that a AMS chat session may be stored for later use. The session may be stored internally on the memory of the mobile communication terminal, which may imply fast access, or the session may be stored externally, which may imply possibilities to store large amounts of data, or a link for each AMS message, describing the path to the rest of the AMS message may be saved internally and the rest of the messages may be saved externally on a server, which may imply fast access to the links for each stored AMS message of the session, e.g. the headlines of the AMS messages, and a possibility to receive the AMS messages via the links.

The method of the above mentioned first aspect may further comprise: presenting existing AMS chat sessions; and selecting one or several of said many AMS chat sessions to participate in.

An advantage of this is that the user may easily survey and choose among existing AMS chat sessions.

The method of the above mentioned first aspect may further comprise: receiving a AMS message; playing said AMS message; and displaying an image associated with the sender of said AMS message.

An advantage of this is that a person with no reading skills may know from whom the AMS message is sent.

The method of the above mentioned first aspect may further comprise: determining a time for a AMS chat session to be held; and transmitting said time to an associated mobile communication terminal.

An advantage of this is that a AMS chat may be decided to be held in advance.

The method of the above mentioned first aspect may further comprise: determining a number of AMS messages in a AMS chat session; comparing said number of AMS messages in said AMS chat session with a maximum value of AMS messages in said AMS chat session; and deleting the first received, last received, first sent, or last sent AMS messages, or a combination of these in said AMS chat session until said number of AMS messages corresponds to said maximum value of AMS messages in said AMS chat session.

An advantage of this is that the memory of the mobile communication terminal is handled in an efficient way, and since the messages is deleted gradually the memory does not risk to run short.

The method of the above mentioned first aspect may further comprise: setting said maximum value of AMS messages.

An advantage of this is that the user may configure the mobile communication terminal according to his or her preferences.

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The method of the above mentioned first aspect may further comprise: receiving a first AMS message; entering a AMS playing mode automatically; and playing said first AMS message.

An advantage of this is that less user interaction is required, which is especially advantageous for users being busy with, e.g. driving a car.

The method of the above mentioned first aspect may further comprise: entering a AMS recording mode automatically; recording an audio message; creating a second AMS message comprising said audio message; creating a second AMS chat indicator; and transmitting said second AMS message and second AMS chat indicator.

An advantage of this is that the user may answer the received message with less user interaction.

The method of the above mentioned first aspect may further comprise: starting said recording; recording until a lower soundlevel is registered for a predetermined low sound level time or for a predetermined time; and stopping said recording.

An advantage with this is that the user may answer the received message with less user interaction.

The AMS chat session may comprise one or more sent or received audio messages, wherein said method further may comprise the steps of: storing said one or more sent or received audio messages; and presenting a set of items, wherein each item represents one of said audio messages. The item may comprise a time stamp, a sender indicator, a symbol, a text, an image, or an indication whether the represented audio message is received or sent, or any combination thereof.

An advantage of this is that a feasible chat log can be provided.

The above object is provided according to a second aspect of the present invention by a method for a audio messaging service (AMS) chat mobile communication terminal comprising: receiving a AMS chat indicator and a AMS message from one of one or several mobile communication terminals associated with a AMS chat session; and associating said AMS message to said AMS chat session.

An advantage with this second aspect of the invention is that the mobile communication terminal may be able to associate received AMS messages with correct AMS chat session, which improves the message handling.

The method of the above mentioned second aspect may further comprise: receiving a AMS chat request from an initiating mobile communication terminal of said associated mobile communication terminals; displaying an indication associated with said AMS chat request for a user of said associated mobile communication terminal; receiving an input from said user; and transmitting a AMS chat answer based on said input to said initiating mobile communication terminal.

An advantage of this is that the user of the receiving mobile communication terminal may have the possibility to accept or reject the invitation.

In the above mentioned second aspect of the invention, the AMS chat indicator may comprise a AMS chat session ID, and the method may further comprise: creating a new AMS chat session for every received new session ID.

An advantage of this is that several AMS chat sessions may be in progress simultaneously.

The method of the above mentioned second aspect may further comprise: selecting one or several of said sent AMS messages, said received messages from any of said one or several associated mobile communication terminal, or any combination of these for said AMS chat session; and presenting selected AMS messages.

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An advantage of this is that a specific AMS message in said AMS chat session may be easier to find.

Another advantage of this is that the user may configure the AMS message presentation of said AMS chat according to his or her preferences.

The method of the above mentioned second aspect may further comprise: selecting one or several of said sent AMS messages, said received messages from any of said one or several associated mobile communication terminal, or any combination of these for said AMS chat session; and

playing selected one or several AMS messages consecutively.

An advantage of this is that several AMS chat messages in a AMS chat session may be played with less user interaction and with fewer interruptions. The method of the above mentioned second aspect may further comprise: selecting one or several of said sent AMS messages, or said received messages or any combination of these, from one of said one or several associated mobile communication terminals, for said AMS chat session; and deleting one or several sent AMS messages, received AMS messages, or a combination of these in said AMS chat session

An advantage of this is that AMS messages in a AMS chat session may be deleted in an efficient way.

The method of the above mentioned second aspect may further comprise: entering a AMS chat session; selecting a mobile communication terminal; transmitting a AMS chat request associated with said AMS chat session to said selected mobile communication terminal; receiving an answer from said selected mobile communication terminal; and adding said selected mobile communication terminal to said AMS chat session if received said answer is positive.

An advantage of this is that the mobile communication terminal may invite a mobile communication terminal to join an existing AMS chat session.

The method of the above mentioned second aspect may further comprise: entering a AMS chat session; receiving a AMS chat request from a mobile communication terminal; and adding said mobile communication terminal to said AMS chat session.

An advantage of this is that if a first mobile communication terminal participating in a first AMS chat session receives a request to join a second AMS chat session from a second mobile communication terminal, the first mobile communication terminal may, instead of sending an answer to the received request, send a request to the second mobile communication to join the first AMS chat session. In this way it becomes easier to add new users to existing AMS chat sessions.

The method of the above mentioned second aspect may further comprise: entering a AMS chat session; and deleting an associated mobile communication terminal from said AMS chat session.

An advantage of this is that the mobile communication terminal may remove misbehaving participants from said AMS chat session.

The method of the above mentioned second aspect may further comprise: entering a AMS chat session; leaving said AMS chat session; and deleting AMS messages in said AMS chat session.

An advantage of this is that the memory handling of the mobile communication terminal may become more efficient. It is also an advantage that this is made automatically when leaving the AMS chat session, since this does not require any user interaction.

The method of the above mentioned second aspect may further comprise: entering a AMS chat session; leaving said

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AMS chat session; and storing said AMS chat session internally, or externally on a storing device, or a combination of these.

An advantage of this is that a AMS chat session may be saved for later use. The session may be saved internally in the memory of the mobile communication terminal, which may imply fast access, or the session may be saved externally, which may imply possibilities to store large amounts of data, or a link for each AMS message, describing the path to the rest of the AMS message may be stored internally and the rest of the messages may be stored externally on a server, which may imply fast access to a small part of each saved AMS message of the session, e.g. the headlines of the AMS messages, and a possibility to receive the AMS messages via the links.

The method of the above mentioned second aspect may further comprise: presenting existing AMS chat sessions; and selecting one or several of said AMS chat sessions to participate in.

An advantage of this is that the user may easily survey and choose among existing AMS chat sessions.

The above mentioned second aspect may further comprise: entering a AMS chat session; receiving a AMS message; playing said AMS message; and displaying an image associated with a sender from which said AMS message is sent.

An advantage of this is that a person with no reading skills may know from whom the AMS message is sent.

The method of the above mentioned second aspect may further comprise: determining a number of AMS messages in a AMS chat session; comparing said number of AMS messages in said AMS chat session with a maximum value of AMS messages in said AMS chat session; and deleting the first received, last received, first sent, or last sent AMS messages, or a combination of these in said AMS chat session until said number of AMS messages corresponds to said maximum value of AMS messages in said AMS chat session.

An advantage of this is that the memory of the mobile communication terminal is handled in an efficient way. Since the messages are deleted gradually the memory does not risk to run short.

The method of the above mentioned second aspect may further comprise: setting said maximum value of AMS messages.

An advantage of this is that the user may configure the settings according to his or her preferences.

The method of the above mentioned second aspect may further comprise: receiving a first AMS message; entering a AMS playing mode automatically; and playing said first AMS message.

An advantage of this is that less user interaction is required, which is especially advantageous for users being busy with, e.g. driving a car.

The method of the above mentioned second aspect may further comprise: entering a AMS recording mode automatically; recording an audio message; creating a second AMS message associated with said audio message; and transmitting said second AMS message.

An advantage of this is that the user may answer the received message with less user interaction.

The method of the above mentioned second aspect may further comprise: starting said recording; recording until a lower sound level is registered for a predetermined low sound level time, or for a predetermined time, or a combination of these; and stopping said recording.

An advantage of this is that the user may answer the received message with less user interaction.

The AMS chat session may comprise one or more sent or received audio messages, wherein said method further may

comprise the steps of: storing said one or more sent or received audio messages; and presenting a set of items, wherein each item represents one of said audio messages. The item may comprise a time stamp, a sender indicator, a symbol, a text, an image, or an indication whether the represented audio message is received or sent, or any combination thereof.

An advantage of this is that a feasible chat log can be provided.

The chat session may further comprise SMS (short message service), EMS (enhanced messaging service), or MMS (multimedia messaging service) messages, or any combination thereof. An advantage of this is that a very versatile chat application is provided.

The above object is provided according to a third aspect of the present invention by a mobile communication terminal comprising a receiver for receiving AMS chat messages; a user interface comprising an input for recording audio messages and for controlling an operation of said mobile communication terminal, and an output for outputting said received audio messages; a processor for processing said audio message to a AMS message, for executing a AMS chat application, and for generating a AMS chat message comprising a AMS chat indicator and said AMS message, and information regarding associated terminals; and a transmitter for transmitting said generated AMS chat message to said associated terminals.

The mobile communication terminal of the above third aspect may further comprise a memory for storing AMS chat messages.

An advantage of this is that the AMS chat messages are fast and easily accessed.

The memory may be of different flash memory types, such as Memory Stick, Compact Flash or Secure Digital, as well as a hard disc drive.

Another advantage of this is that the memory may contain links with a path to an external memory storage, such as a server, where the AMS chat messages are stored. In this way, several AMS chat messages may be saved without being out of memory. The AMS chat messages, saved on an external memory storage, may further easily being accessed by many different users.

The mobile communication terminal of the above third aspect may further comprise a speech detector for detecting if said user speaks, and for transferring a speech detection signal to said processor; and wherein said processor is arranged for receiving said speech detection signal.

An advantage of this is that the user may participate in a AMS chat session just by talking and listening, according to prior description.

The above object is provided according to a fourth aspect of the present invention by a system for handling an audio messaging service AMS chat session between mobile communication apparatuses via a mobile communication network, said system comprising means for handling point-to-point audio messaging service in said mobile communication network;

an AMS chat session handling server; and

a group of mobile communication apparatuses accessing said AMS chat session handling server, wherein

said mobile communication apparatuses are adapted to send a request for participating in an AMS chat session to said AMS chat session handling server, and

said AMS chat session handling server is arranged to provide an AMS message for the group of mobile communication apparatuses, to update the AMS message from members of the group of mobile communication apparatuses, and to

transmit the updated AMS message to the group of mobile communication apparatuses participating in said chat session.

The above object is provided according to a fifth aspect of the present invention by a method for handling an audio messaging service AMS chat session between mobile communication apparatuses, comprising the steps of:

generating a list of mobile communication apparatuses to be invited to participate in said AMS chat session;
inputting an AMS message;
sending said AMS message to said mobile communication apparatuses on said list;
receiving a reply from one of said mobile communication apparatuses; and
transmitting said reply to at least the others of said mobile communication apparatuses.

BRIEF DESCRIPTION OF THE DRAWINGS

The above, as well as additional objects, features and advantages of the present invention, will be better understood through the following illustrative and non-limiting detailed description of preferred embodiments of the present invention, with reference to the appended drawings, wherein:

FIG. 1 is a flow chart of an embodiment of a method for the initiating process of a AMS chat session.

FIG. 2 schematically illustrates the communication between an initiating mobile communication terminal and an associated mobile communication terminal during an initiation of a AMS chat session.

FIG. 3 is a flow chart of an embodiment of a method for the receiving process of a AMS chat session.

FIG. 4 schematically illustrates the communication between a first initiating mobile communication terminal and an associated initiating mobile communication terminal, and between a second initiating mobile communication terminal and said associated mobile communication terminal.

FIG. 5 is a flow chart of an embodiment of a method for playing a received AMS message automatically and recording an answer to said received message automatically.

FIG. 6 illustrates schematically a mobile communication terminal;

FIG. 7 illustrates an example how a user can experience a user interface UI of a mobile communication apparatus while using a AMS chat application according to an embodiment of the present invention;

FIG. 8 illustrates an example how a user can experience a user interface UI of a mobile communication apparatus while using a AMS chat application according to an embodiment of the present invention;

FIG. 9 illustrates an example how a user can experience a user interface UI of a mobile communication apparatus while using a AMS chat application according to an embodiment of the present invention;

FIG. 10 illustrates an example how a user can experience a user interface UI of a mobile communication apparatus while using a AMS chat application according to an embodiment of the present invention;

FIG. 11 illustrates a system for handling AMS chat according to an embodiment of the present invention; and

FIG. 12 is a flow chart illustrating a method for handling an AMS chat session.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 is a flow chart illustrating a method of an embodiment of the present invention describing the initiating process

of a AMS chat session. The process is initiated by a mobile communication terminal, hereafter referred to as the initiating mobile communication terminal.

In a first associated mobile communication terminal definition step **100**, one or several mobile communication terminals are defined to participate in present forthcoming AMS chat session. These defined participants will be referred to as associated mobile communication terminals. This definition of associated mobile communication terminals can be made by inputting the number associated with the associated mobile communication terminals, or via a predetermined list.

Optionally, when the associated mobile communication terminals are defined a AMS chat request is transmitted to them in a AMS chat request transmission step **101**. This request may be sent as an SMS, a AMS, a MMS, or any other message type supported by a mobile communication terminal. The answers to the requests are received by the initiating mobile communication terminal in a AMS chat answer reception step **102**. The answers to these requests may be either positive or negative.

In an answer determination step **103**, it is determined if the received answer(s) is/are positive or negative. If the answer is positive for an associated mobile communication terminal the process of this will continue to steps **104-107** for performing AMS chat, as will be described below, but if it is negative the process will end.

Next, in a AMS chat indicator creation step **104**, a AMS chat indicator is created by the initiating mobile communication terminal. The AMS chat indicator is a small data set indicating to the receiving mobile communication terminal that a AMS chat message is incoming.

Next, in an audio message recording step **105**, an audio message is recorded by the user of the initiating mobile communication terminal. Alternatively, this step could be made before the AMS chat indicator creation step **104**, or at the same time.

Then, in a AMS message creation step **106**, a AMS message is created based on said audio message. The audio message could, e.g. be attached to, incorporated in, converted to, compressed and attached to, or compressed and incorporated in the AMS message.

Thereafter, step **107**, the AMS message and the AMS indicator is sent to all associated mobile communication terminals.

FIG. 2 schematically illustrates the communication between an initiating mobile communication terminal **200** and an associated mobile communication terminal **201**, which may be one of many associated mobile communication terminals. Optionally, the first step is that the initiating mobile communication terminal **200** sends a AMS chat request **202** to the associated mobile communication terminal **201**, accordingly with step **101** in FIG. 1. Depending on the input from the user of the associated mobile communication terminal **201**, or predetermined settings in the associated mobile communication terminal **201**, a AMS chat answer **203** is/are sent from the associated mobile communication terminal(s) **201** to the initiating mobile communication terminal **200**. If the AMS chat answer(s) **203** is/are positive, a AMS chat indicator and AMS message **204** is sent from the initiating mobile communication terminal **200** to the associated mobile communication terminal(s) **201**.

FIG. 3 is a flow chart describing the receiving process of a AMS chat session.

Optionally, in a AMS chat request reception step **300**, a AMS chat request is received. Thereafter, in an indication display step **301**, an indication, e.g. in the form of a pop-up window on the display of the associated mobile communication

terminal, is shown to the user of the associated mobile communication terminal. Then, an input from the user is received by the associated mobile communication terminal in a user input reception step **302**. This user input may be positive or negative. The answer associated with the user input is sent in a AMS chat answer transmission step **303** to the initiating mobile communication terminal in the form of a AMS chat answer.

FIG. 4 schematically illustrates an example of a communication between a first initiating mobile communication terminal **400** and a first associated mobile communication terminal **401**, and between a second initiating mobile communication terminal **402** and said first associated mobile communication terminal **401**.

First a AMS chat request **403** to join a first AMS chat session is sent from the first initiating mobile communication terminal **400** to the first associated mobile communication terminal **401**, thereafter, a positive AMS chat answer to join said first AMS chat session **404** is sent from the associated mobile communication terminal **401** to the first initiating mobile communication terminal **400**, and thereafter a AMS chat indicator and AMS message **405** is sent from the first initiating mobile communication terminal **400** to the first associated mobile communication terminal **401**. Thereby, a first AMS chat session is now established between the first initiating mobile communication terminal **400** and the first associated mobile communication terminal **401**.

Second, a AMS chat request **406** to join a new second AMS chat session is sent by the second initiating mobile communication terminal **402** to the first associated mobile communication terminal **401**.

Since the associated mobile communication terminal **401** already is participating in a AMS chat session, a AMS chat request to join this existing first AMS chat session **407** is sent to the second initiating mobile communication terminal **401**, instead of sending a AMS chat answer which is also an alternative.

Third, the request is accepted by the second initiating mobile communication terminal **402** and a positive AMS chat answer **408** to join said first existing AMS chat session is sent to the first associated mobile communication terminal **401**. Thereafter, a AMS chat indicator and AMS message **409** is sent from the second initiating mobile communication terminal **402** to the other participants in the first AMS chat session, namely the first initiating mobile communication terminal **400** and the associated mobile communication terminal **401**.

The communication procedures described above, is only to be seen as an illustrative example. In this example only one associated mobile communication terminal is represented, but the same principles is also applicable on cases where several associated mobile communication terminals are represented.

FIG. 5 is a flow chart illustrating a method of an embodiment of the present invention describing an optional process for receiving and sending AMS messages and AMS indicators.

In the first step, step **500**, a AMS message and a AMS indicator is received by the mobile communication terminal. When receiving the AMS indicator, the mobile communication terminal knows that a AMS message is received.

Thereafter, step **501**, a playing mode is entered by the mobile communication terminal and the AMS message is played automatically, without any user interaction being necessary, step **502**. If the AMS indicator comprises a session ID, this functionality can be limited to certain AMS chat sessions, and if the sender is known, e.g. by phone number, this functionality can be limited to certain users as well, and if both

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session ID and sender is known this functionality can be limited by a combination of these two.

It is further possible to automatically, without any user interaction being necessary, continue the process by entering a AMS recording mode, step 503. The recording is started automatically, step 504.

When the recording is started a measurement of the sound level is started as well. If a lower sound level is detected, step 506, the recording is stopped. If no lower sound level is detected the recording is stopped after a certain maximum time. In this way the user of the mobile communication terminal only have to say the answer in the microphone of the mobile communication terminal, while the rest is made automatically.

Thereafter, a AMS chat indicator is created and the recorded AMS message and the created AMS chat indicator is transmitted to the sender of said received AMS message and AMS indicator, step 507.

FIG. 6 schematically shows a mobile communication apparatus 600 according to an embodiment of the present invention. It should be noted that parts not contributing to the core of the invention are left out not to obscure the features of the present invention. The mobile communication apparatus comprises a processor 602, a user interface (UI) 604, a memory 606, a transmitter 612, a receiver 616 and a speech detector 614.

The memory 606 holds program code for operation of applications of the mobile communication apparatus. The memory 606 also holds data used by the applications. Here, the memory 606 is depicted as a single unit. However, the memory can be two or more units, and/or divided in partitions. Preferably, program code for applications can be downloaded to the memory 606, and the downloaded program code can then be executed by the processor 602.

The user interface (UI) 604 comprises an input 610 and an output 608. The output 608 is arranged to present information to a user, such as audio output related to AMS messages, displaying text and/or images related to AMS chat or the operation of AMS messages. The input 610 is arranged to receive input related to AMS chat requests, AMS chat answers, recording of audio messages, selecting among different AMS chat sessions and/or different AMS messages of a AMS chat session.

The transmitter 612 is arranged to transmit data and the receiver 616 is arranged to receive data to and from a mobile communication network, respectively.

The speech detector 614 is arranged to detect whether the user speaks or not. This detection can be achieved by comparing a filtered sound level in the microphone and comparing this sound level with a threshold. The filtering is made in order to reduce the affect of surrounding sounds and noise.

FIG. 7 illustrates an example how a user can experience a user interface UI of a mobile communication apparatus while using a AMS chat application. When Audio messaging is chosen in a main menu or accessed by a short cut of the mobile communication apparatus, an audio messaging menu 700 is displayed to a user. The user can then choose Audio message chat 702 from the menu 700, and will then be prompted to input a chat number in an audio message chat prompt 704. The user can also choose to search for a chat by choosing 'Search' 706 in the prompt 704. When a chat is chosen, e.g. by inputting a chat number 708, a chat mode view 710 is presented. If an audio message is received, an indication 712 is presented to the user that an audio message is to be played. The playing of the audio message can start automatically, or the user can make a selection to start the playing of the audio message.

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The user can select 'Speak' 714 in the chat mode view 710 to start recording 716 of an audio message. When the audio message is recorded, the user selects 'Stop & Send' 718 and the recorded audio message will be sent to the chat participants. A sending view 720 is presented to the user, and when the audio message is successfully sent, a confirmation view of successful sending 722 is presented to the user. Then, the chat mode view 710 will be presented to the user after a predetermined time timed out.

FIG. 8 illustrates an example how a user can experience a user interface UI of a mobile communication apparatus while using a AMS chat application. A chat mode view 800 can comprise a chat log 802, showing a menu list of sent and received audio messages in the present chat session. The sent and received audio messages can also be presented as icons or other graphical representation of audio messages of the chat session. Preferably, each audio message in the log comprise a time stamp 804, and information who sent the audio message, e.g. simply showing if it was a incoming or outgoing audio message, in FIG. 8 presented by arrows, or showing an identification of the sender at each audio message item, by text, a symbol, or an image. The time stamp can be a time of day, e.g. according to the time zone of the initiator of the chat, or Zulu time, or a time related to the chat session, e.g. the time from the initiation of the chat session. The chat log is automatically updated when a new audio message is present in the chat session. The audio messages of the chat session is preferably presented in chronological order, e.g. with the latest audio message on top of the list.

The audio messages of the chat session are preferably stored in the mobile communication apparatus, as described above. To avoid memory overflow, the storage can be applied according to first-in first-out principle, where a user can set the number of audio messages to save, or the amount of memory to assign to storing audio messages related to the chat session.

FIG. 9 illustrates an example how a user can experience a user interface UI of a mobile communication apparatus while using a AMS chat application. A user can select to play an audio message of the chat session by selecting the audio message from the list of audio messages of the chat session. A user can also select to play all messages, or a selected sub-set of messages, in chronological order according to time stamp of the audio messages, to form a recall of a virtual conversation comprising audio messages of the chat session.

FIG. 10 illustrates an example how a user can experience a user interface UI of a mobile communication apparatus while using a AMS chat application. When a user receives an audio message that is not related to a present chat session, the user can use a shortcut to include the received audio message into the chat session, and preferably, the sender of the audio message to the participants of the chat session. The user can also choose to put the participation in the chat session to 'idle', and respond to the audio message separate from the chat session. The user can also choose to initiate a new second chat session with the person sending said received audio message, wherein the two chat sessions become independent on each other. Thereby, the user can toggle between the two chat sessions.

To provide a very versatile chat application, the chat session can also include messages according to short message services (SMS) enhanced messaging services, and multimedia messaging services (MMS).

A system architecture for managing a system 1100 according to an embodiment of the present invention is shown in FIG. 11. A Home Location Register (HLR) 1102 contains a database (not shown) including relevant subscriber informa-

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tion for provision of telecommunication service. A CCITT specified network **1104** interconnects the individual parts of the system **1100**. An AMS gateway **1106** is a switching unit routing a message or a call to a mobile communication apparatus **1108-1112**. An AMS Service Center **1114** (AMSC) and the AMS gateway **1106** handles and routes the AMS's between the AMSC **1114** and the network **1104**. From the network **1104**, the AMS messages are routed to the mobile communication apparatuses **1108-1112** via a Mobile Switching Center (MSC) **1116** to a Base Station Controller (BSC) **1117** and a Base Transceiver Station (BTS) **1120, 1121**, or a Radio Network Controller (RNC) **1118** and a Node B **1122**. Alternatively, the AMS messages are routed to the mobile communication apparatuses **1108-1112** via a Serving GPRS Support Node (SGSN) **1126, 1128** to the BSC **1117** and the BTS **1120, 1121**, or the RNC **1118** and the Node B **1122**, respectively. The BTS **1120, 1121** or the Node B **1122** establish the air connection to the mobile communication apparatuses **1108-1112**.

According to an embodiment of the present invention, a network operator or other third party company handling a chat server **1124** could offer a chat function between persons not knowing each other. For example a network operator may have a chat server **1124** supporting a feature where the user may send a chat request from his mobile communication apparatus **1108-1112** to the chat server **1124** by using a special phone number. This chat server **1124** automatically places people sending a similar request message to the chat server **1124** into "chat groups" or "chat rooms". Whenever a user, being part of such a group, sends a message to the chat server **1124**, the chat server **1124** adds the audio message 'on top' of the previous communication in the chat group and forwards the up-dated communication in an AMS message to all the other persons in the group. The chat server **1124** is responsible for the distribution of the AMS messages and the distribution lists.

FIG. 12 is a flow chart illustrating a method for handling an AMS chat session between mobile communication apparatuses from a system point of view. In a list generation step **1200**, a list of mobile communication apparatuses to be invited to participate in the chat session is generated. For example, the mobile communication apparatuses can be determined from prior requests received from the mobile communication apparatuses to participate in a chat session, i.e. from the users of the mobile communication apparatuses. An AMS message is input in an AMS message input step **1202**, and the AMS message is then sent to the participants in an AMS message sending step **1204**, i.e. to the mobile communication apparatuses in the generated list. A participant may send a reply, and then is a reply received in a reception step **1206**. The AMS message of the reply is then sent to the other participants of the chat session in a reply transmission step **1208**. Every received reply is then treated the same way as long as the chat session goes on.

What is claimed is:

1. An apparatus comprising:

at least one processor; and

at least one memory including computer program code, the at least one memory and the computer program code configured to, with the at least one processor, cause the apparatus to perform at least the following:

provide for transmission of a first audio messaging service (AMS) chat request to participate in an AMS chat session from a mobile communication terminal to at least one associated mobile communication terminal, wherein the first AMS chat request relates to a new chat session;

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provide for reception of a second AMS chat request associated with an existing AMS chat session at the mobile communication terminal from the at least one associated mobile communication terminal;

based on receipt of the second AMS chat request, provide for automatically setting the mobile communication terminal to an AMS message recording mode;

provide for allowing an audio message to be recorded;

provide for creating an AMS message comprising the recorded audio message; and

provide for transmission of the created AMS message as an AMS chat answer in response to the second AMS chat request from the mobile communication terminal to the at least one associated mobile communication terminal, the AMS chat answer allowing the mobile communication terminal to enter the existing AMS chat session.

2. The apparatus according to claim 1, wherein the apparatus is configured to select one or more sent AMS messages, received AMS messages, or a combination thereof, from the at least one associated mobile communication terminal for the existing AMS chat session; and perform one or more of: presenting one or more of the selected AMS messages; playing one or more of the selected AMS messages consecutively; and deleting one or more of the selected AMS messages.

3. The apparatus according to claim 1, wherein the apparatus is configured to delete an associated mobile communication terminal from the existing AMS chat session.

4. The apparatus according to claim 1, wherein the apparatus is configured to allow the mobile communication terminal to leave the existing AMS chat session, and to delete AMS messages associated with the existing AMS chat session from the mobile communication device.

5. The apparatus according to claim 1, wherein the apparatus is configured to allow the mobile communication terminal to leave the existing AMS chat session, and to store the existing AMS chat session for later use by the mobile communication device.

6. The apparatus according to claim 1, wherein the apparatus is configured to:

receive an AMS message from one of the at least one associated mobile communication terminal;

play the AMS message at the mobile communication terminal; and

display an image associated with the sender of the AMS message on the mobile communication terminal.

7. The apparatus according to claim 1, wherein the apparatus is configured to:

determine a number of AMS messages in the existing AMS chat session;

compare the number of AMS messages in the existing AMS chat session with a maximum number of AMS messages; and

delete the first received, last received, first sent, and/or last sent AMS messages in the existing AMS chat session until the number of AMS messages corresponds to the maximum number of AMS messages.

8. The apparatus according to claim 1, wherein the apparatus is configured to:

after entering the existing AMS chat session, receive an AMS message in the existing AMS chat session from one of the at least one associated mobile communication terminal;

automatically set the mobile communication terminal mode to an AMS playing mode; and

play the received AMS message on the mobile communication terminal.

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9. The apparatus according to claim 1, wherein the apparatus is configured to:

- based on receipt of an AMS chat message, automatically set the mobile communication terminal to an AMS message recording mode;
- allow an audio message to be recorded;
- create an AMS message comprising the recorded audio message; and
- transmit the AMS message from the mobile communication terminal.

10. The apparatus according to claim 1, wherein the existing AMS chat session comprises one or more sent and/or received AMS messages, wherein the apparatus is configured to:

- store the one or more sent or received AMS messages; and
- present a set of items to a user of the mobile communication terminal, wherein each item represents one of the AMS messages.

11. The apparatus according to claim 1, wherein the apparatus is a portable electronic device, the mobile communication terminal, a server, or a module for one or more of the same.

12. A mobile communication terminal comprising:
the apparatus of claim 1;

- a user interface comprising an input configured to record audio messages and an output configured to output received audio messages; and
- a transmitter configured to transmit the generated AMS chat messages to one of the at least one associated mobile communication terminals.

13. The mobile communication terminal according to claim 12, further comprising one or more of:

- a memory for storing AMS chat messages, and
- a speech detector for detecting if a user speaks, and for transferring a speech detection signal to the processor, wherein the processor is configured to receive the speech detection signal.

14. A method comprising:

- transmitting a first audio messaging service (AMS) chat request from a mobile communication terminal to at least one associated mobile communication terminal, wherein the first AMS chat request relates to a new chat session;

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receiving a second AMS chat request associated with an existing AMS chat session at the mobile communication terminal from the at least one associated mobile communication terminal;

- based on receipt of the second AMS chat request, automatically setting the mobile communication terminal to an AMS message recording mode;
- allowing an audio message to be recorded;
- creating an AMS message comprising the recorded audio message; and

transmitting the created AMS message as an AMS chat answer in response to the second AMS chat request from the mobile communication terminal to the at least one associated mobile communication terminal to allow the mobile communication terminal to enter the existing AMS chat session.

15. A computer program product comprising a non-transitory computer-readable memory having a computer program stored therein, the computer program comprising code configured to:

- transmit a first audio messaging service (AMS) chat request from a mobile communication terminal to at least one associated mobile communication terminal, wherein the first AMS chat request relates to a new chat session;

receive a second AMS chat request associated with an existing AMS chat session at the mobile communication terminal from the at least one associated mobile communication terminal;

- based on receipt of the second AMS chat request, automatically set the mobile communication terminal to an AMS message recording mode;

allow an audio message to be recorded;

create an AMS message comprising the recorded audio message; and

transmit the created AMS chat message as an AMS chat answer in response to the second AMS chat request from the mobile communication terminal to the at least one associated mobile communication terminal to allow the mobile communication terminal to enter the existing AMS chat session.

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